

RATS AND FLEAS.

The Riddle of the Plague and How it may be Solved.

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SCIENTIFIC men are greatly worried, and the scientific men, in their turn, are worrying the Indian Government. The Government are worrying the natives of India, and the natives are worrying rats. Three-pence per dozen is the handsome price placed upon the heads of these intelligent rodents, and little boys in Indian villages, and all the grown-up men who have nothing better to do, are hunting rats and proudly bringing them up to the medical stations, and smilingly depositing them by the thousand before the wise-looking British representatives.

There is another way of earning money. Natives are hired to visit the market-places, to depict in glowing language the horrors of plague, and to preach the gospel of salvation by—vaccination. And every man, woman, or child who yields to the persuasive eloquence of the dark-skinned apostle of the new covenant, who stands with a syringe full of liquid filth in his left hand whilst he emphasises his sentences with his right, receives the sum of sixpence as a governmental bribe. As the wily

Hindoo, under present conditions, has little objection to earn money so easily, he is quite willing to scrape in as many sixpences as he possibly can in the same simple way ; hence the equally wide-awake representative of the British Government orders his thumb mark to be taken in the hope of convincing the native that if he dare to seek protection over and over again in order to increase the number of sixpences, his sins would be sure to find him out.

Outrageous Quackery.

What with expensive bacteriologists, and elaborately equipped stations, and native preachers, and native bribes, and the purchase of rats *et hoc genus omne*, the whole bag of tricks which accompanies modern science must be costing a pretty penny in India. One begins to wonder how much longer the Government is going to be deceived by one of the most outrageous pieces of quackery ever foisted upon a dependency of the British Crown.

Mr. Haffkine, the inventor of the Plague Vaccine, read a paper on Dec. 2, 1907, before the Epidemiological Section of the Royal Society of Medicine on "The Present Methods of Combatting the Plague," and it was nearly all about rats. Dr. Ashburton Thompson followed with a paper on "The Protection of India from Invasion by Plague," and his chief trouble appeared to be with regard to fleas. Mr. Haffkine says : "The efforts to secure protection from rats must secure universal approval." Dr. Thompson says : "Some intermediate agent is necessary to convey the infection in efficient form from rat to man. The intermediate agent can be no other than the flea." It would have been interesting if these scientific men had done a little more particularising

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and rather less generalising ; for although an enormous number of experiments have been made in regard to these fleas, nobody seems quite certain whether the flea that bites the rat is the same species of flea that bites the human subject ; and others, again, are not quite certain whether it is the flea that “plagues” the rat or the rat that “plagues” the flea ; and the difficulty is not lessened by consideration of the serious problem as to how the rat or the flea (whichever might be the primary sinner) got hold of the plague in the first place !

Rough on Rats.

Then another very serious difficulty has arisen which has puzzled science considerably, namely, that someone has discovered a microbe in the flea ; now comes the knotty point whether the rat has not been grossly misrepresented after all, and whether he is not rather to be pitied than blamed for being obliged to carry upon his back through life a sort of Noah’s Ark on a small scale. Could he but speak, the poor rat would probably talk to Mr. Haffkine in much the same way that Balaam’s ass talked to Balaam. It is a question whether the riddle has been satisfactorily solved yet, and there is probably more truth than appears upon the surface in the old saw, that :—

Big fleas have little fleas
Upon their backs to bite ’em,
And these fleas have other fleas,
And so *ad infinitum*.

We may depend upon it we have not got to the bottom of this flea business, and these scientific investigations upon fleas and microbes are likely to continue for a good many years to come ; or at all events, as long as the British Government will supply

the necessary funds for so important an enterprise as an investigation into the pathology of flea-bites.

In the meanwhile, the rats are having a rough time of it. Mr. Haffkine describes how busy they have been in his department. He appears to be as well up in the science of rat-catching as in vaccine manufacture. Rats have been poisoned, trapped, tarred, and set at with cats; covered with petroleum so as to kill the fleas at the same time; houses and ships fumigated; mechanical hindrances constructed to prevent rats coming on shore and from entering houses, and so on, and so on.

The Poison is in the Soil.

But he seems to be appalled at the awful number of rats, and Dr. Ashburton Thompson's heart must sink beneath him at the still greater number of fleas; and when it comes to the microbes in the fleas, especially when they are not quite sure which is the right one, the anxiety must be truly bewildering. These scientists deserve our sincerest commiseration. The heroism of the scientist is however, apparent, in the close of Dr. Thompson's address, I suppose it is his peroration, and runs as follows :—

I do not doubt that when a broad and comprehensive survey of all the data has been taken it will be perceived that the exclusion of rats from occupied buildings in cities is the only measure which can permanently diminish the susceptibility of India to plague, and that as soon as this principle of action has been grasped, resolutions taken by Government will be conceived in the spirit which animated that courtier who, when he was desired to undertake a business which the King himself thought it hardly possible to carry through replied, "Sire, if it be difficult it is already done; if it be impossible, it shall be done"!

That is very fine language, but we will back the rat against the Government after all!

Now, when rats appear in a house in this country, the ordinary man in the street does not write long-

winded addresses ornamented with glowing perorations for the delectation of a society with a long name which has never done any practical good since it was founded, but he sends straight away for the sanitary engineer, and says : “ Look here, I have rats in my house ; there is something wrong with my drains or there’s a leakage at the sewers, or there’s some insanitary area near here which attracts them, and I want you to find out where and what it is and put a stop to it.” He doesn’t talk about fleas and microbes and bacteriological researches, but he goes straight for the soil and says, “ *There is something wrong there.*” And if the Government would just give Mr. Haffkine and all his army of scientific men with their tubes of caged filth and their patent squirts prompt notice to quit, and would employ half-a-dozen practical sanitary engineers with full powers to put a stop to the business, they could settle the plague in no time, and it would be an immense saving in life and treasure.

Where the Plague lurks.

One thing is absolutely certain, that the plague practically confines itself to definite areas—namely, the southern part of the Bombay Presidency and the North-Western part of India, including the United Provinces of Agra and Oudh. In the Bombay Presidency alone the plague is carrying off 7,000 men, women, and children a week. The Madras Presidency, Lower Bengal, and the Central Provinces have continued practically free. There must be some reason for this partiality, and to try to settle it by all this twaddle about rats and fleas and microbes and vaccines is merely trifling with a very serious problem.

A little more than two years ago Dr. Charles Creighton read a paper before the Indian Section of the Society of Arts giving the result of a three months’ visit he had paid to India to study as an epidemiologist the conditions of plague in our great Indian dependency. He came to the conclusion that the differ-

ence between the healthy and diseased districts lay in the character of the houses and their sanitation. He gives, for instance, a graphic picture of a typical Belgaum village, in the Bombay Presidency, which had had a long series of plague epidemics, and he says :—

While the infection had crept about to all parts of this village site it was the unanimous opinion that it always began in a certain quarter, the high ground on the northern side, next to the high road, which was the particular quarter of the Mohammedan butchers and cattle-dealers. . . . There was no regular slaughter-house, but each householder used the space before or behind it for killing in. . . . The whole soil of this elevated corner of the village was saturated with the blood and offal of many years, and swarmed with rats, as shambles always do.

A sanitary inspector had condemned this condition of things two years before, but the Commissioner had taken no heed. The village itself was composed of mud hovels upon earthen foundations.

Wanted—Better housing for the Natives.

Here is a description of a couple of them :—

They were both old and crumbling, built of sheer mud, without plinths, standing side by side on a slight declivity of the main street. Each consisted of a single square room, without window or back door, with an oil-mill occupying the centre of the worn earthen floor. . . . The party wall between them was of mud, only six or seven feet high and crumbling at the top, so that the houses were open to each other across the whole pitch of the begrimed roof. Plague deaths had occurred in both, and in one of them five had died out of a family of six.

Leaving the Bombay Presidency, Dr. Creighton describes other plague villages in the North-West which is now by far the worst seat of plague :—

The many thousands of villages which have had the infection in them are of a very uniform type. As one goes westward, the compact fort-like aggregate of mud walls and fiat roofs becomes more distinctive, and throughout the whole of the Punjab that is the type. . . . The houses are often huddled together, with narrow winding lanes between the rows, and sometimes in compact blocks, back to back and side to side, with no intervals at all.

Speaking of one plague village in Jullnudur, where 250 died from plague in two months out of a population of 3,000, Dr. Creighton says :—

The greater number of those deaths had come from a square block of houses (and from one or more like it) which had the most remarkable construction that I saw anywhere in India. It was literally a hive of some thirty or forty mud cells. . . . Entering by a door near a corner, one came into a room, which somehow held a cow or bullock as well as the family.

Describing the new villages of the Chenab Colony where plague had been rife, he says :—

The Public Works Department had left the Colonists a free hand in the matter of building materials, and they had built their villages of sheer mud.

In one village he speaks of

There was not a single kiln-burnt brick except in the facing of the village well, and, so far as I could see, there were not even sun-dried bricks in the walls of houses. The whole village was a hasty pudding of crude mud walls, some of which were already cracked.

Of the old villages of Shahpur and their mud houses :—

They looked the filthiest and most dilapidated villages that I had seen anywhere, and were credibly said to be swarming with rats. Each of them had lost about a fourth part of the population by plague the year before.

The Remedy—Stone houses instead of mud.

Cogently Dr. Creighton sums up the situation :—

The trouble always and everywhere has been from crowded sites, too long inhabited without drainage. The more compact the site, or the greater the congestion of houses upon it, the more will the soil be filled with organic impurities. . . . If the upper stratum be saturated with organic matters beyond the power of the soil to enter into combination with them, each new accretion sinks down more or less slowly to the deeper layers unchanged, there to undergo putrefaction or reduction by ferments, so that beyond a certain point the self-cleansing action of the soil breaks down. . . . That the infection of plague resides in the ground is now accepted by every practical man in India who has been on plague duty, and is perceived intuitively by the people themselves.

Get rid of these conditions and the rats will flee just as the mosquitoes disappeared when the swamps were drained. Dr. Creighton draws a contrast between the villages of mud hovels and those where *pakka*-built houses—brick or stone houses with stone floors—are erected ; and he shows how the ground air rises into the unprotected mud houses, especially at night. This is so well known by the natives that it is no uncommon sight to see a whole population evacuate their hovels at nightfall and go out to sleep in the open. He explains it thus :—

Where the walls are of mud, as they are in a great majority of plague villages, and have no masonry plinth to rest upon, their porous substance is really part of the soil, so that the inmates have the ground-air not only rising from the floor, but carried up in the walls as if in a ventilating shaft. A dwelling-house warmed all day by the sun, and by the fire kept up by cooking, becomes like an exhausted receiver for the ground-air to rise into. If you visit the old chawls at Bombay, in which there has been so much plague, you will find the narrow, dark rooms on the ground floor to be heated like an oven even at eight in the morning. . . . In the new chawls at Bombay, built by the Improvement Trust, nothing seemed to me to promise more for the future health than the solid masonry of the foundations, floors and passages. The advantages of concrete foundations have been proved often in similar circumstances.

In conclusion this careful investigator, whose name stands for the first epidemiologist of our time, says :—

After seeing a good many of those dreadful mud villages, I have come to think that it is their miserable structure that is the real reason why the Indian plains are cursed with plague, and that there can be no real cure without a more civilised kind of dwelling, and a great revival of the native building arts as village industries.

False cry of “Plague” in England.

These conclusions are indirectly confirmed by no less an authority than Mr. Haffkine himself, who admits it is now more or less generally recognised, “that plague is . . . a disease of locality ; that it is contracted principally at night ; and that the part which man plays as direct agent in its propagation is a more or less subordinate one.” But to admit the common-sense, as well as scientific conclusions of Dr. Creighton and of the practical men of India would be fatal to Mr. Haffkine’s “science,” so, instead of pointing to soil poison he utters an indictment against rats and fleas, and instead of better dwellings for the natives, he invokes the aid of big-salaried bacteriologists, Pasteur Institute endowments, and syringe-fuls of filthy quackery.

When the medical bureaucrats of the Indian Government cease to think bacterially, and to act with sanitary wisdom, India will be cleared of her plague and not before.

Every attempt has been made in England recently to create a scare in connection with four cases of alleged plague in Suffolk. After killing a hundred thousand rats, terrifying the whole country by means of sensational newspaper letters, and ruining for the time being the agricultural trade of the district, the bureaucratic authorities responsible for the absurd scare have had to confess rather tardily that there is no certainty that the cases were those of plague at all. Every unprejudiced common sense man is well aware that they were simply cases of ordinary pneumonia.

Bogus Rats and Fleas.

Moreover, the black rat has always been branded as the only one capable of carrying the plague, and a good deal of paper and printers ink has been spent in the past in pouring blessings upon the brown rat for having driven the black rat out of the country, and thus saving us from plague and epidemics! It is therefore very disconcerting to find the brown rat now charged with a crime of which it has always been held to be innocent!

Not even the flea found in Suffolk was the "genuine" one which we have been told could alone produce the plague, and as for the "microbe," the same kind is found in so many other diseases that no one dares to say positively that the microbe which was found in the slain bodies of Suffolk rats, was capable of producing the plague.

Thus the whole scare has fizzled out, although there are still a few fossil "scientists" who delight in regaling audiences with gruesome warnings about plague in Suffolk, and in retailing hackneyed nonsensicalities about Rats and Fleas.

The fact is, there has been no plague in this country during the last 240 years. It was banished from our midst along with the black death, jaol fever and sweating sickness, by sanitary improvements, and can never again, we believe, obtain a foothold in our midst.

It is reassuring, however, that after all our efforts in exposing the fallacies and absurd conclusions of our modern scientists, light is at last breaking upon the horizon.

Warning Voices from India.

In the Annual Report for 1910, of Lieutenant Colonel E. C. Hare, I.M.S. Sanitary Commissioner for Eastern Bengal and Assam, he refers to the well-known immunity of Eastern Bengal from plague, and draws attention to an enquiry conducted during 1910 by Captain J. C. G. Kunhardt I.M.S. on behalf of the Commissioner for the Investigation of Plague in India, who had visited that province.

He declares that the freedom from plague in that large area is due to the construction of the dwellings, they being for the most part built more solidly with cement plinths, and roofs made of stone slabs.

“The houses, too, were better lighted and kept in better repair. The people themselves were more clean in their habits, and they did not allow so much rubbish or refuse to collect around their homes. In a word, a higher standard of sanitation prevails in Eastern Bengal than in some other parts of India where the plague plays such havoc among the natives.”

In the Annual Report of Major C. E. Williams, I.M.S. Sanitary Commissioner for Burma for 1908, the writer protests against the ignoring insanitary conditions, and in concentrating all the efforts solely upon the destruction of rats and fleas. He writes :—

“The practical sanitarian cannot fail to recognise that for him the real source of predisposition to plague epidemics so conspicuous among Asiatic races, lies in the insanitary conditions among which the poorer classes live, which foster the prevalence of rats and insect vermin, and that a true prophylaxis is to be found in the amelioration of these conditions.”

Rats are nature's scavengers ; they are, under the conditions of insanitation described, the friends of man and not his foes, and the remedy for plague lies not in killing rats, but in removing the foul conditions which encourage their presence, and which in all ages have been the source of plague epidemics.

The Fallacy of Vaccine Statistics.

Those who are anxious to prove their case in favour of vaccines and against sanitation, publish statistics showing differences between inoculated and uninoculated cases, always in favour of the former. But there is a grave fallacy underlying all such figures.

In the first place the differences in the fatality between the inoculated and the uninoculated cases are for the most part slight and are easily accounted for by the fact that the inoculated cases are more or less selected, whereas the uninoculated include all rapidly fatal cases. The statistics are therefore unscientific, as

other factors are not taken into consideration.

No account is taken, for instance, of the character of dwelling place in which the different classes of sufferers lived—whether of stone with stone flooring or mud walls and a mud floor—this factor makes all the difference to the attack rate.

Let us take India as a whole. The plague began in 1896 and claimed 30,000 deaths in the *year*. The bacteriologists commenced the wholesale distribution of vaccine in 1897, and by the year 1904 the deaths had reached 30,000 per *week*. They increased every year for nine years (except in 1900). From September, 1906, to April, 1907, there were 5,326,000 deaths. That does not say much for vaccine. In 1908 the heavy rains washed the soil and the slump in plague was sudden; it was almost extinguished. But directly the heat played again on the rotting soil, cholera (another soil poison), and small-pox (an aerial poison), took its place for a time and produced more deaths than the plague. Then plague returned. And plague will continue until medical officialdom is stopped in its insane process of blood poisoning and plague dissemination, and the work of the Sanitary Engineer is called into requisition instead.

Plague in Manchuria.

A few months ago we were aroused by a fresh sensation. Plague had broken out in Manchuria, and plague in India was forgotten for the time being. There were as many deaths from plague in a single week in India as there were during the whole outbreak in Manchuria, but we had become accustomed to the great death toll of India, and the newspapers were glad of fresh copy.

Bacteriologists were sent there from all over Europe to study the disease, but as far as one can gather, the majority of them kept at a respectful distance from the plague infested dens where death was claiming its victims, and preferred to prosecute their enquiries in comfortable quarters some distance away.

Their first enquiry was for rats, but alas for their theories, there were none to be blamed. But as it was necessary to modern science to lay the responsibility upon an animal of some kind, they fixed upon the marmot, and an English representative from the Lister Institute, London, wired home one day that he had discovered a marmot with thirty-six big fleas upon it, which was duly chronicled in all the London newspapers, but we have not heard a word more about them since. The scientists, in spite of all their efforts, had to give up the marmot and its fleas in despair.

Even the microbes would not oblige the scientific theorists, for directly the sputum of the patients dried up the microbe disappeared. And as for vaccines and serums, they were of no more value than tallow candles.

Then came the irony of the whole situation. Whilst the bacteriologists were gathered in solemn council day after day reading and listening to learned papers upon the subject, the plague mysteriously disappeared as suddenly as it had come; so they packed up their traps, put the Chinese money in their pockets, and came off home after quarrelling among themselves, and left the subject just where they had found it.

The fact is, plague broke out in an area of the grossest insanitation, among crowded dwellings, and after using up all the susceptible material it died out.

If we turn to Egypt, we find that a similar outbreak of plague occurred in Alexandria in the year 1899. Dr. Rogers, Director General of the Sanitary Department, dealt with it promptly on sanitary lines, which, he declared, were "directly opposed to Mr. Haffkine's views." He scorned inoculations just as Mr. Haffkine scorns sanitation, and stamped it out in 7 months.

Plague has always followed in the wake of war, famine and the presence of putrefying organic matter. The remedy for this pestilence lies not in adding disease to disease in the shape of vaccines and serums, or in injecting morbid material into healthy bodies, but in removing the conditions which cause it.